REMARKS

In the Office Action dated August 10, 2005, pending Claims 1-21 were rejected and the rejection made final. In response Applicants have filed herewith an Amendment After Final and have amended independent Claims 1, 11, and 21. Applicants intend no change in the scope of the claims by the changes made by this amendment. It should be noted these amendments are not in acquiescence of the Office's position on allowability of the claims, but merely to expedite prosecution.

Applicants and the undersigned are most grateful for the time and effort accorded the instant application by the Examiner. On October 10, 2005, Applicants' counsel conducted a telephone interview with the Examiner and her supervisor, Smits Talivaldis, in which the present application was discussed. No agreement was reached with respect to the claims.

On October 11, 2005, Applicants' counsel conducted a second telephone interview with the Examiner in which the objection to the drawing was discussed. In the outstanding Office Action it is asserted that element 104 is unclear as to whether it corresponds to the data points to cluster or if it already clustered. However, this element is explicitly defined in the specification. The objections to the naming of elements in Figure 2 is also explicitly explained in the specification, with the depiction of recursion in Figure 2 precipitating the choice of element names. Accordingly, it was agreed the Examiner would withdraw the objection to the drawing

Claims 1-21 were pending in the instant application at the time of the outstanding Office Action. Of these claims, Claims 1, 11, and 21 are independent claims; the remaining claims are dependent claims. Claims 1, 11, and 21 have been rewritten. Applicants intend no change in the scope of the claims by the changes made by these amendments. It should also be noted these amendments are not in acquiescence of the Office's position on allowability of the claims, but merely to expedite prosecution.

Claims 1-21 stand rejected under 35 USC § 101 with the Office asserting the claims are directed to non-statutory subject matter. Independent Claims 1, 11 and 21 have been rewritten to include "speech and audio data as input data" as a limitation in the essential part of the claim, as suggested by the Office. Thus, it is respectfully submitted that this rejections have been obviated.

Claims 1-21 also stand rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point our and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office asserts that the limitations "any system" and "obtaining input data" in claims 1, 11, and 12 lack antecedent basis. The limitation "obtaining input data" has been amended as shown above, and thus this rejection is obviated. Further, the limitation of "any system" has also been amended to read "any model". This limitation should be read in light of the field of art. Regardless of whether the specification provides a standard for ascertaining the requisite degree of the limitation, such a degree is provided by the field of art, specifically by the knowledge of one of ordinary skill in the art of models that are well-known in the art. Thus, these rejections are respectfully obviated.

Claims 1-3, 11-13, and 21 stand rejected under 35 USC § 102(e) as being anticipated by Passera. Reconsideration and withdrawal of this rejection is respectfully requested.

The present invention broadly contemplates, in accordance with at least one presently preferred embodiment, an apparatus for facilitating data clustering. (Page 3, lines 4-5) The present invention has the ability to obtain input data. (Page 3, lines 5-6) Upon obtaining the input data, the present invention is able to create a predetermined number of non-overlapping subsets of the input data. (Page 3, lines 6-7) The creation of the predetermined number of non-overlapping subsets of the input data may be done in a recursive manner using eigen-decomposition to repeatedly split the data sets. (Page 5, lines 3-15) This clustering of the speech and audio data is executed without any dependency or utilization of a system or model with which to adapt or compare the data. The clustered data obtained by the invention may then be used in adapting systems or models as is well-known in the art. An application of the instant invention includes the enhancement of a procedure such as the enrollment of target speakers in a speaker verification system by speeding up the training time in the system. (Page 8, lines 1-4) Thus, the present invention facilitates efficient data clustering based on recursion using eigen-decomposition to split the data into separate clusters.

As best understood, the invention set forth by Passera contemplates a system for creating a description of a model system's behavior by analyzing the sensitivity of the model in subspaces of an input space of the model. (Column 2, lines 1-4) The sensitivity analysis provides a profile of the input space of the model corresponding to the sensitivity

of the outputs of the model with respect to the inputs to the model. (Column 2, lines 4-7) Through the analysis and creation of the sensitivity profile, the input space is recursively divided into a predetermined number of subspaces. (Column 4, lines 58-63)

The sensitivity analysis system of Passera is in stark contrast to the present invention. As discussed in the specification and in the independent claims, the instant invention obtains input data and facilitates data clustering of that input data independent of any model wherein the splitting of the input data into a predetermined number of non-overlapping subsets does not depend on a model. Passera contends that an output of his invention features the splitting of the input data to a model. The sensitivity measures which select the threshold upon which the data is split in Passera (column 5, lines 34-49, Figure 4) are obtained by applying input test data to a model and calculating values based on the output data received from the model. (column 3, lines 29-54)

It is respectfully submitted that Passera clearly falls short of present invention (as defined by the independent claims) in that, *inter alia*, it does not disclose **facilitating data clustering of input data independent of any model wherein the splitting of the input data into a predetermined number of non-overlapping subsets does not depend on a model.** Accordingly, Applicants respectfully submit that the applied art does not anticipate the present invention because, at the very least, "[a]nticipation requires the disclosure in a single prior art reference of each element of the claim under construction." *W.L. Gore & Associates, Inc. v. Garlock*, 721 F.2d 1540, 1554 (Fed. Cir. 1983); *see also In re Marshall*, 198 U.S.P.Q. 344, 346 (C.C.P.A. 1978).

Claims 4-9 and 14-19 stand rejected under 35 USC § 103(a) as obvious over Passera in view of Kuhn et al. Specifically the Office asserted that "[i]t would have been obvious ... to use eigenvector decomposition via data clustering in order to improve speed and efficiency at which speaker and environment adaptation is performed." Reconsideration and withdrawal of the present rejection is hereby respectfully requested.

A 35 USC 103(a) rejection requires that the combined cited references provide both the motivation to combine the references and an expectation of success. Not only is there no motivation to combine the references, no expectation of success, but actually combining the references would not produce the claimed invention. Thus, the claimed invention is patentable over the combined references and the state of the art.

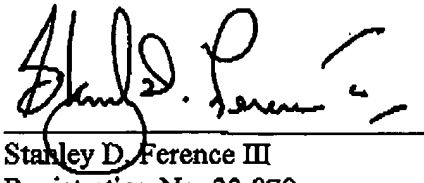
Kuhn et al. does not overcome the deficiencies of Passera set forth above. In that regard, Kuhn et al. applies the eigenvector decomposition to speaker specific supervectors in order to determine a feature space to represent speaker models. Kuhn et al. deals with speaker and environment adaptation, which is fundamentally different from the data clustering and sensitivity analysis set forth in Passera. Eigenvector reduction is used in Kuhn et al. to obtain the eigenvoice space. (column 7, lines 7-11) The eigenvoice space is necessary for speaker normalization and adaptation. The construction of the eigenvoice space to represent speakers as in Kuhn et al. is constructed using one model per speaker, with each model possibly representing a Hidden Markov Model. (column 5, lines 51-65) There is no natural connection from the construction of the eigenvoice space of Kuhn et al. to the input spaces of Passera. Additionally, there is no such connection to the instant invention, in which the eigen decomposition is applied to raw data that is independent of

any model. Over and above the lack of connection to the instant invention, Kuhn et al. is a model-dependent system, thus making it inapplicable as prior art to the invention. Thus, it is respectfully submitted that the combination of Passera with Kuhn et al would not produce the claimed invention.

In view of the foregoing, it is respectfully submitted that independent Claims 1, 11, and 21 fully distinguish over the applied art and are thus allowable. By virtue of dependence from Claims 1 and 11, it is thus also submitted that Claims 2-10 and 12-20 are also allowable at this juncture.

In summary, it is respectfully submitted that the instant application, including Claims 1-21, is presently in condition for allowance. Notice to the effect is hereby earnestly solicited. Applicants' undersigned attorney would welcomes further discussion with the Office in the event there are any further issues in this application.

Respectfully submitted,



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